

Engineering  
Library

# SAE *Journal*



SEP 30, 1940

OCTOBER 1940

▲ The Control of Smoke in the Automotive Diesel

—W. W. Manville, G. H. Cloud, A. J. Blackwood, W. J. Sweeney

▲ Better Fuels for Better Engines

—William H. Hubner

▲ Altitude and the Aircraft Engine

—Erol F. Pierce

▲ Engineering Properties of Rubber in Compression

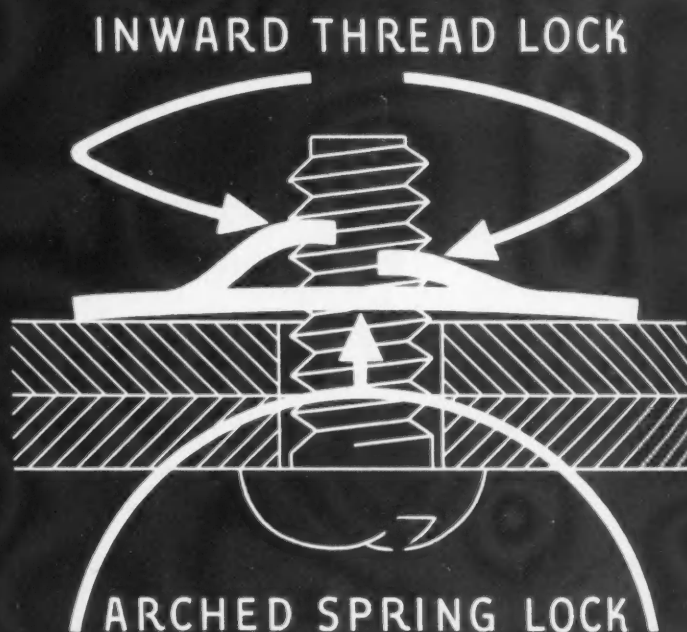
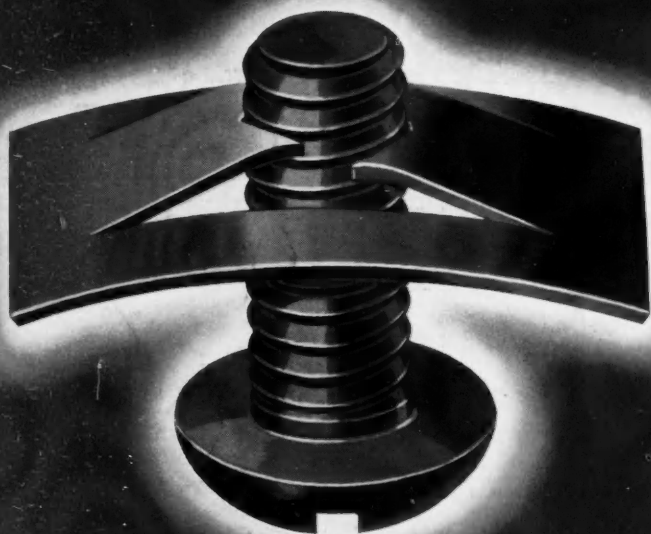
—Roy W. Brown



SOCIETY OF AUTOMOTIVE ENGINEERS

# Speed Nuts

**THE ONLY ONE PIECE FASTENING DEVICES THAT AFFORD A DOUBLE LOCK**



**ELIMINATE THREADED NUTS AND LOCK WASHERS**

The SPEED NUT is the only one piece fastening device ever developed that actually affords a double lock.

Note how the arched prongs fit into the threads while the main base of the SPEED NUT is also well arched. As the bolt is turned and tightened, the main arch of the SPEED NUT is brought down and the prongs are forced deeper into the roots of the threads to double-locked position. This gives an arched spring lock and an inward thread lock at the same time.

Vibration tests have shown that the SPEED NUT will stand from 3 to 6 times more vibration than conventional nuts, without loosening. That is why we say, SPEED NUTS definitely prevent loosening from vibration and hold assembled parts together under firm spring tension for the life of the product.

Are you taking full advantage of SPEED NUTS as time and cost savers in the assembly of your *entire* product? Check every assembly location and switch to standard SPEED NUTS wherever possible. Write for samples today, explaining nature of assembly.

**TINNERMAN PRODUCTS, INC., 2063 FULTON ROAD, CLEVELAND, OHIO**  
**MANUFACTURERS OF PATENTED SPEED NUTS**

IN CANADA: Wallace Barnes Co., Ltd., Hamilton, Ontario

IN ENGLAND: Simmonds Aerocessories, Ltd., London

IN FRANCE: Aerocessaires Simmonds, S. A., Paris

OVER 900 MILLION ALREADY USED—OVER 700 SHAPES AND SIZES

# SAE *Journal*

Published Monthly by The Society of Automotive Engineers, Inc.

Arthur Nutt, President

David Beecroft, Treasurer

John A. C. Warner, Secretary and General Manager

Norman G. Shidle, Executive Editor



## About Authors

■ A. J. BLACKWOOD (M '27) and G. H. CLOUD (M '38), who collaborated with Dr. W. J. Sweeney and W. W. Manville in preparing "Control of Smoke in the Automotive Diesel," covered "Characteristics of Diesel Fuels Influencing Power and Economy" in their joint paper published in the February, 1940, SAE Journal. Mr. Blackwood, as sole and co-author, contributed earlier papers dealing with diesel fuels and detonation. He is in charge of the Standard Oil Development Co. engine laboratories and of testing and development of automotive, diesel, and aviation fuel. Mr. Cloud heads the Esso Laboratories' diesel-fuels research work.

■ For more than 20 years ROY W. BROWN (M '26) has been engaged in research engineering with the Firestone Tire & Rubber Co. His work has covered evolution of production processes, laboratory measurement of product performance, and product design. A considerable number of issued patents and technical papers describe accomplishments which have come under Mr. Brown's direction. Riding-comfort research, development of the air spring and of extensive vulcanization processes indicate the scope of his undertakings. His previous experience consisted of naval and powerplant engineering. He studied at Findlay College and Case School of Applied Science.

■ WILLIAM H. HUBNER (M '25) began studying the relations between fuels and engines in 1923 when he joined Chevrolet as a test engineer. Later, with the Universal Oil Products Co., and more recently with the Ethyl Gasoline Corp., his work has included exploring and promulgating the possibilities of improving those phases of en-

## CONTENTS OCTOBER 1940

News of the Society	13
About SAE Members	18
SAE Nominees for 1941	19

## TRANSACTIONS SECTION

The Control of Smoke in the Automotive Diesel — W. W. Manville, G. H. Cloud, A. J. Blackwood, W. J. Sweeney	397
Better Fuels for Better Engines — William H. Hubner	409
Altitude and the Aircraft Engine — Erol F. Pierce	421
Engineering Properties of Rubber in Compression — Roy W. Brown	432
Section Chairmen for 1940-1941	22
Applications Received	24
New Members Qualified	24
SAE Coming Events	28

gine efficiency that are dependent on fuel characteristics. Since the first of this year Mr. Hubner has been director of Ethyl's Refinery Technology Divi-

sion. He received his B.S. from the University of Pittsburgh in 1922, his M.S. from the University of Michigan (Concluded on page 16)

C. B. Whittelsey, Jr., Business Manager,  
29 West 39th St., New York, N. Y.

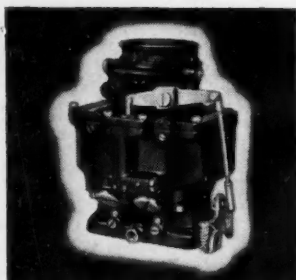
E. L. Carroll, Eastern Advertising Manager,  
29 West 39th St., New York, N. Y.

A. J. Underwood, Western Advertising Manager,  
2-136 General Motors Bldg., Detroit, Mich.



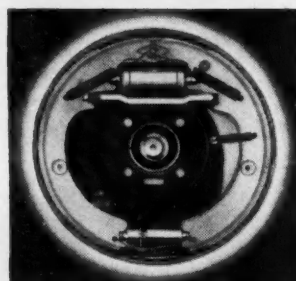


**that is why most of the industry  
*puts its faith in Bendix!***



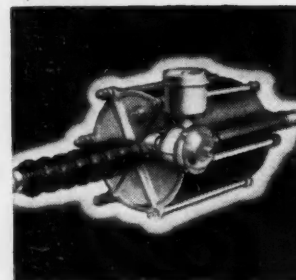
#### **The Stromberg Carburetor**

Pioneer of progress in carburetion—outstanding for its high efficiency, its many superiorities, its long life, its simplicity of construction and its stability of adjustment.



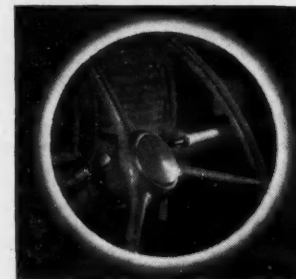
#### **The Bendix Brake**

Smoothest, simplest, most stable in adjustment, easiest to adjust. Embodies exclusive fundamental principles which assure better braking with far less pedal effort.



#### **Bendix B-K Power Braking**

Overwhelming favorite, with every advantage of reliability, performance, long life. Only system which provides everything Power Braking can offer. Millions in service.



#### **The Bendix Gear Control**

Pioneer and most highly developed of steering post gear controls—least manual effort needed—utmost responsiveness provided. Years of service. Proved reliability.

**Y**OU feel as sure of your 1941 models as a ship's captain feels sure of his anchor-to-windward—and rightfully so. Those months of planning, discussing, designing, building, testing, discarding, revising, revamping—those "drafting-room-discouragements," "conference-conflicts," and "production-line-pains"—all have had just one fundamental purpose—to make SURE.

*And because Bendix men have gone through so many such sessions with all of you, over the years, we know how all-important it is for you to be sure.*

You need to be sure, for instance, that you have specified the right types of carburetors, brakes, gearshifts and controls. You need to be sure they will perform in service as your calculations and testing indicate. And you need to be sure of the source . . . sure that reliability, responsibility, resourcefulness and reputation are back of your production schedules.

We believe you have found these advantages in your years of experience with Bendix Products on the cars you have built and sold. We believe that you value the trustworthiness of the Bendix company and of Bendix Products as *your anchor-to-windward*. And Bendix is as proud of your confidence as you are proud of your brilliant cars of 1941.

**BENDIX PRODUCTS DIVISION**  
of Bendix Aviation Corporation  
South Bend, Indiana

*In Canada: Bendix-Eclipse of Canada, Ltd. Windsor, Ont.*

# **BENDIX** *Products*



## Nutt Tells Sections Lessons the U. S. Can Learn from the Defeat of France

**T**HE French defense program was scheduled to be in full swing by 1941—but the Germans made their major attack in 1940. That was one of the points emphasized by SAE President Arthur Nutt in his talk urging the United States to profit by errors made by France.

Mr. Nutt, who is vice president of engineering, Wright Aeronautical Corp., based his remarks on personal observations made in France during the stirring days before its fall, while on a special mission to the French Government as adviser on airplane-engine production. He spoke last month at the Society's Buffalo, Metropolitan and Cleveland Sections.

The French not only started too late to prepare for the German attack, he declared, but also failed to set up the proper procedure to encourage private industry to prepare for the necessary expansion of manufacturing facilities. Progress was hampered, he added, by slow technical approvals and poorly organized inspection and control. He went on to explain that contractors were saddled

with severe contract penalties and profit limitations, and that there were inadequate provisions for financing and expansion on a war-time basis.

Proper standards for materials and detail design requirements for engine mountings, accessory mountings, and other parts were lacking, Mr. Nutt said, adding that these would have been of considerable assistance if they had been available at the beginning of the war.

One of the serious factors in the disorganization of the French Forces, Mr. Nutt revealed, was the frequent break down of the country's communication system. He also pointed to the lack of coordination of service activities, procurement of government-furnished materials, planning for spare parts, planning of selection of new engine types and sizes, and in furnishing manufacturers with proper selection schedules, all of which, he said, contributed to the failure in a major way.

Another great handicap stressed by Mr. Nutt, was the selective draft which, he stated, took technical men and trained specialists from the manufacturers. He also condemned the poor organization of French legal provisions for work hours and labor regulations.

He did not overlook fifth column activities. These, he said were apparently in full force.

When German bombers came, Mr. Nutt said, the French realized that they had been terribly negligent by concentrating industry in limited, vulnerable areas. Light leakage from industrial plants made them targets, he added. Plans were made too late, he continued, to move industries away from Paris and to construct underground and bomb-proof factories.

The background of all these mistakes, said Mr. Nutt, was the lack of appreciation of what the Germans were doing during the past eight years by the men in charge of the French Government, despite the fact that they had been told repeatedly by specialists who had observed the German progress.

"If a parallel can be drawn between French difficulties and what is going on in this country," he declared, "then something should be done with the least possible delay to correct the situation here by avoiding their mistakes, as well as the mistakes we made in the last war; putting politics in the background, and substituting intelligent co-ordinated effort to place this country in a satisfactory position for national defense."

American airplane engines were held in high favor by the French, Mr. Nutt reported. They pointed out, he said, that

### Army Host to SAE Ordnance Committee

Members of the SAE Ordnance Advisory Committee took off their coats when they inspected tanks during the demonstrations of U. S. Army motorized combat equipment at Aberdeen Proving Ground, Md., July 24

Following the demonstrations members of the SAE Group met with Army officers for two days of intensive engineering discussion



## Assistant Secretary of War

American radial air-cooled engines were superior to both the French air-cooled and liquid-cooled in-line types, and stressed the lack of vulnerability of air-cooled engines. The final conclusion of French authorities, Mr. Nutt reported, was that it would be better to buy the complete airplane and engine combination fully equipped from America, than to attempt to buy the parts and assemble them in France where production was in such an unbalanced state. American engine types, he added, were far superior to any other engine types in use in the war, according to French authorities.

Accompanying Mr. Nutt on his section visits was SAE General Manager John A. C. Warner who spoke on the Society's part in National Defense.

*Cleveland had more than 250 at the dinner meeting, Sept. 9, at which President Nutt and General Manager Warner were speakers. The total approximated 500 as other members and guests came in after dinner to hear the talks.*

*More than 450 were on hand to hear Messrs. Nutt and Warner at Buffalo, Sept. 10. Joining the SAE at this meeting were members of the Aero Club of Buffalo.*

*The Metropolitan Section was host to the SAE Council at its Sept. 12 meeting. Attendance of members and guests broke all records, soaring to more than 650.*

*Sharing the program with President Nutt was Dr. Stephen J. Zand, consulting engineer, Sperry Gyroscope Co., Inc., who told of his recent army experiences in France.*

*Mr. Warner's tenth anniversary as secretary and general manager was marked by a gift from members of the Metropolitan Section.*

### QMAC Group Sees Action At U.S. Army Maneuvers

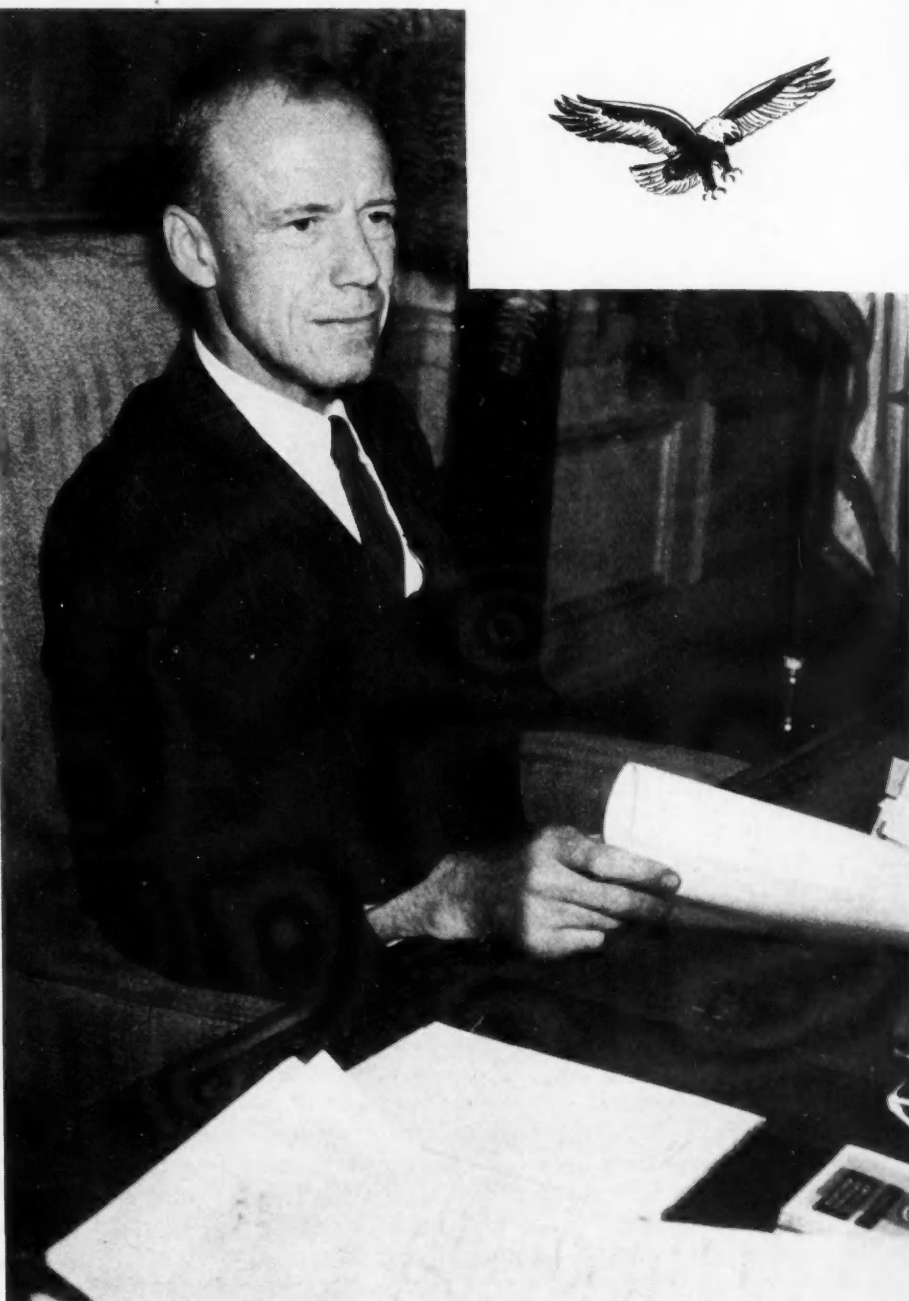
The U. S. Army's system of maintaining its motor vehicles in the field was studied under conditions approximating those of actual warfare by a group including representatives of the SAE-Quartermaster Corps Advisory Committee, who were present at the First Army Maneuvers in the Northeastern New York Area, Aug. 20-21, at the invitation of Quartermaster General Edmund B. Gregory.

On their arrival at Gouverneur, N. Y., early on the morning of the 21st, the group was escorted to the Officers' Mess, where they were greeted by Col. John Chambers and Major John Hubbard.

Following the welcome, the group left by bus for the Quartermaster Supply Depot at Watertown, and then continued to Madison Barracks for inspection of the 4th echelon shop, where major repairs are made. They next inspected the 3rd echelon set-up under cover at Army Advance Depot, Gouverneur, before returning to the First Army Headquarters.

The second day's itinerary started with an inspection of the 3rd echelon advance corps depot, in the open, at Brasher Falls. Later in the morning the party went on to Winthrop, for 3rd echelon division inspection, 1st Division, Regular Army.

During the afternoon the SAE representatives visited the 3rd echelon set-up operated by Company E, 102nd QM Regiment, 27th Division, National Guard, at DeKalb Junction, and the 2nd echelon set-up of the



62nd C. A. (AA). At the conclusion of these inspections the party returned to Army Headquarters at Gouverneur for a conference with officers of the Quartermaster Corps.

The tour was under Major David G. Paston, who was assisted by Col. Bullock, Capt. Danker, and Lts. Annenberg and Fullerton.

Representatives of the SAE-Quartermaster Corps Advisory Committee included Merrill C. Horine, Mack Mfg. Corp.; J. T. Fitzsimmons, Delco Remy; John W. Votypka, Fruehauf Trailer Co.; C. Parsons, Detroit Harvester Co.; J. H. Hunt, General Motors Corp.; John A. C. Warner and Donald E. Blanchard of the SAE Staff. Another SAE member, B. W. Elgin, Firestone Tire & Rubber Co., was with the party which also included representatives of several manufacturers whose equipment was being used in the maneuvers.

### Aircraft Projects Pace SAE Standards Program

Recent aircraft activities of SAE Standards Committee Divisions reflect the increasing demands for specifications by the rapidly expanding aviation industry.

The Aircraft-Engine and Screw Threads Divisions report progress in a two-part program which includes (1) clarification and refinement of screw-thread diameter and pitch combinations for aircraft applications, and (2) reduction of the fatigue factor in more highly stressed threaded connecting parts, particularly for aircraft.

Progress is also reported by the Aircraft Materials Division in the development of additional material specifications.

Among the accomplishments of the Iron & Steel Division has been the approval of



# Robert Porter Patterson speaks on

## "The Automotive Industry

and

## National Defense"

at the

### SAE ANNUAL DINNER

New York

Oct. 14

JUDGE ROBERT PORTER PATTERSON, Assistant Secretary of War since July 31 of this year, saw active service on the Mexican Border and in France.

He advanced from private to major; personally destroyed an enemy outpost on Aug. 14, 1918, for which he was awarded the Distinguished Service Cross; and, for gallantry in action on Sept. 26, 1918, received the Silver Star.

Judge Patterson came to his present post from the United States Circuit Court of Appeals.

Hotel Commodore

TOASTMASTER

**K. T. Keller**

*President of Chrysler Corp.*

a recommended practice for classification of non-metallic inclusions in steels, where such a degree of refinement in steels is desired.

The division is also preparing a somewhat similar recommended practice for defining or rating magnaflux indications in steels. Two methods of recording these indications have been described. One is a direct record on sensitized paper, and the other is a transfer method by which the magnaflux indication is permanently recorded on a transparent adhesive tape. Definite recommendations are expected by the end of this year.

#### Start Plastic Color Project

Stimulated by a request from a large aircraft manufacturer the SAE Standards Department has been collecting opinions and suggestions from the aircraft and plastics industries as the basis for a code defining colors of plastic parts; particularly

those used in aircraft. This work will probably be continued under the Aircraft Division of the Standards Committee.

There has been considerable interest in a project on the designation of sheet-metal thicknesses being undertaken by a subcommittee of the Sectional Committee on Wire & Sheet-Metal Gages, of which the SAE is joint sponsor, working under the procedure of the American Standards Association.

It was tentatively suggested by the subcommittee that a series of sheet-metal thicknesses be based upon the American Standard preferred numbers series. Circulation of the industry, however, has indicated that the whole subject needs more study from the users' point of view.

The general opinion of those circularized seemed to be that progression in thicknesses by a preferred-number series would not be of practical use, because any series set up

must include sufficiently close increments in thickness to meet the requirements for press work, especially for large-formed parts and deep drawing. It was suggested that thicknesses should conform to decimal designations rather than to gage numbers.

It is not the intention that all sheets would conform to the suggested new series, but that such a standard series of sheet thicknesses would be of real value in control of stock in warehouses.

This project is closely related to activities of SAE Standards Committee, particularly in its aircraft work.

#### Rubber Committee Active

The SAE-ASTM Committee on Rubber Products has submitted a proposed test specification for 3/8-in. brake hose to the SAE Standards Committee for consideration toward adoption as an SAE Specification.

Auxiliary driving lamps for automobiles have been considered by the Lighting Division, which has prepared a specification for the driving beams. It is expected that a similar specification for passing beams will be completed this year. The Lighting Division also has been making a progressive study of the photometric characteristics of reflex reflectors, looking toward a revised specification in the interest of safer night driving. Such a specification would replace the one appearing in the 1940 SAE Handbook.

## Golf Tournament Opens Section's Fall Program

■ Milwaukee

The Westmoor Country Club saw golf, good, bad, and indifferent, as 101 members and guests of the Milwaukee Section opened the fall season with a tournament, Sept. 6.

A feature event at the dinner which followed was the award of the Milwaukee Golf Trophy for high score to John Allan Mahoney, Waukesha Motor Co. Mr. Mahoney already had two legs on the trophy, and his third "win" gave him permanent possession.

## Council Approves Changes In Committee Personnel

At its meeting, Sept. 12, the SAE Council approved a number of changes on SAE Committees.

Men appointed to Standards Committee Divisions include B. F. Courtright, International Harvester Co., to the Iron & Steel Division; R. R. Moore, Naval Aircraft Factory, to the Aircraft Materials Division; and Robert Insley, Menasco Mfg. Co., to the Aircraft-Engine Division. Col. R. H. Somers has been appointed to replace Col. G. M. Barnes as representative of the Office of the Chief of Ordnance on the Lubricants Division; J. E. Sullivan replaces C. F. Cotton as representative of the Bureau of Aeronautics, Navy Department; and W. H. Nor-

## Canadian Members Take Active Part in War Work

Members of the Canadian Section are co-operating in every possible way with their Government, both as members of the Canadian Section and as individuals.

At a recent meeting the Governing Board of the Section appointed a liaison committee charged with Sectional collaboration with departments of the Canadian Government engaged in war and ancillary activities. Membership of the committee includes: J. C. ARMER, past chairman of the Section and vice president, Dominion Forge & Stamping Co.; J. L. STEWART, Section past chairman and general manager of the Canadian Automobile Chamber of Commerce; and W. B. HASTINGS, secretary of the Section and editor, *Canadian Motorist*.

COL. ERIC PHILLIPS, president of the Duplate Safety Glass Co. of Canada, Ltd., is serving as chairman of the Canadian Naval War Purchasing Committee, and JAMES G. MORROW, Steel Co. of Canada, Ltd., is a member of the Canadian Government's War Steel Board.

Other war appointments of Canadian Section members have been announced in earlier issues of the SAE Journal.

denson, John Deere Wagon Works, succeeds A. K. Antonsen on the Gasoline-Engine Division.

On the SAE Ordnance Advisory Committee J. W. Bridwell, Caterpillar Tractor Co., has been named to succeed the late H. T. McDonald, of the same company, as alternate for Col. Paul Weeks.

New names on the roster of the General Research Committee include J. M. Campbell, General Motors Research, and C. G. A. Rosen, Caterpillar Tractor Co. C. E. Swanson has been added to the Ignition Research

Committee, as has T. Tognola, Scintilla Magneto, Division Bendix Aviation Corp., who replaces Herman Hanni of the same company. Prof. W. E. Lay and Prof. J. M. Nicholsen, University of Michigan, have been added to the Riding Comfort Research Committee.

The Council also confirmed President Arthur Nutt's appointment of B. B. Bachman, Autocar Co., as SAE representative, and William S. James, Studebaker Corp., as alternate on an advisory committee which the Public Roads Administration is organizing in connection with research which it is undertaking in motor-vehicle performance as affected by brakes.

## About Authors

(Concluded from page 11)

in 1923, and his M.E. from Pittsburgh in 1931. He was elected secretary of the SAE Chicago Section in 1939; resigning that post when going to Detroit with the Ethyl corporation.

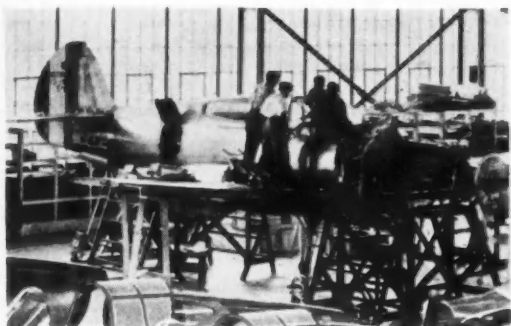
■ Since joining the Standard Oil Development Co. in 1937, W. W. MANVILLE (J '37) has spent his entire time on the development and testing of diesel fuels. After receiving his preliminary education at George Washington University, he was graduated from Rensselaer Polytechnic Institute with a degree in mechanical engineering. He worked for a time as junior engineer with the Bailey Meter Co., and then returned to R.P.I. on a graduate fellowship to obtain his M.S. degree.

■ In 1929, soon after receiving his B.S. degree from Worcester Polytechnic Institute, EROLD F. PIERCE started with the Curtiss Aeroplane & Motor Co., Buffalo. He was first assigned as a test engineer on the Curtiss Conqueror, and later was put to work on diesel development. With the merger of Curtiss Aeroplane & Motor with the Curtiss-Wright group, Mr. Pierce was transferred to Paterson, N. J., as test engineer on the R1510 double-row radial. Then followed a period in the foreign license division, which included eight months in Italy as installation engineer on Cyclone-powered commercial transport airplanes. Since 1936 he has been in Paterson as specification engineer in the field engineering division, Wright Aeronautical Corp.

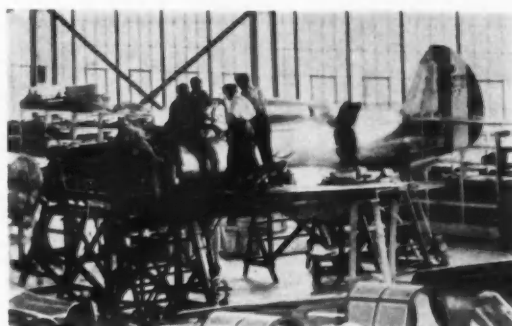
■ DR. W. J. SWEENEY (M '39) joined the Standard Oil Co. of La., in 1929 and was associated with the early developments of hydrogenation and other petroleum processes. In 1934 he became director of that company's development and research laboratory, transferring two years later to the Esso Laboratories, Elizabeth, N. J., as associate director. His work at both places has been in the field of petroleum process and product development. Previous to his association with petroleum research, Dr. Sweeney was assistant professor of chemistry at Pennsylvania State College for six years. He obtained his Doctor's degree in Chemical Engineering in 1928 at M.I.T., his Master's degree in 1924 at Penn State, and his Bachelor's degree in 1919 at Massachusetts State College.







SAE



# Aircraft Production Meeting

and

## Engineering Display

Los Angeles, Hotel Biltmore

Oct. 31, Nov. 1 & 2

### Tentative Program

(Final program will be mailed soon)

#### ELECTRICAL EQUIPMENT

Thursday morning, Oct. 31

Auxiliary Power Equipment  
- R. P. Lansing, Bendix Aviation Corp.

Aircraft Electricity as the Airline Operator Sees It  
- P. C. Sandretto, United Air Lines Transport Corp.

#### MATERIALS

Thursday afternoon, Oct. 31

This session will be devoted to problems in connection with the use of metals and other materials in production of aircraft, aircraft engines, and accessories.

#### PRODUCTION METHODS & PLANNING

Thursday evening, Oct. 31

Engineering Considerations in Aircraft Design to Permit Application of Automobile Mass-Production Methods  
- Don R. Berlin and Peter F. Rossmann, Curtiss-Wright Corp.

Simple Methods of Speeding Up Airplane Production  
- Paul G. Zimmermann, Douglas Aircraft Co.

#### AIRCRAFT ENGINES

Friday morning, Nov. 1

Vapor Lock - CFR Report  
- Dr. O. C. Bridgeman, National Bureau of Standards

Supercharged Aircraft Ignition Harnesses  
- Carl E. Swanson, Northwest Airlines, Inc.

Friday afternoon, Nov. 1

Aircraft-Engine Reduction Gears and Torque Meters  
- Roland Chilton, Wright Aeronautical Corp.

Cooling of In-Line Air-Cooled Engines  
- Homer J. Wood, Menasco Mfg. Co.

#### STANDARDIZATION

Friday evening, Nov. 1

The Standardization Problem in the Aircraft Industry  
- Arthur Nutt, Wright Aeronautical Corp.

Standardization Applied to Aircraft Design  
- J. T. Thompson, Glenn L. Martin Co.

Standardization of Aircraft-Engine Components  
- Gustaf Carvelli, Wright Aeronautical Corp.

#### SUPERCHARGERS

Saturday morning, Nov. 2

Two-Stage Superchargers  
- R. S. Buck, Pratt & Whitney Aircraft, Division United Aircraft Corp.

Engine Performance With Exhaust Turbine-Driven Superchargers  
- E. M. Lester and W. A. Paulson, Pratt & Whitney Aircraft, Division United Aircraft Corp.

#### DINNER DANCE

Saturday evening, Nov. 2

---

The Aircraft Production Meeting and Engineering Display have been arranged under the sponsorship of the SAE Aircraft and Aircraft-Engine Activity Committees. The four Pacific Coast Sections are cooperating.

---

# About SAE Members

**G. G. OBERFELL**, vice president in charge of research, Phillips Petroleum Co., Bartlesville, Okla., has been named to the board of directors of Hydrocarbon Chemical & Rubber Co., a new concern formed jointly by Phillips Petroleum Co. and B. F. Goodrich Co. to make raw materials used in synthetic rubber and the synthetic rubber itself.

**L. A. BIXBY**, manager of the Transmission Division of the Clark Equipment Co. since 1934, has been appointed manager of



**L. A. Bixby**  
Heads  
Automotive  
Sales

automotive sales for the company. His headquarters will be in the organization's general offices, Buchanan, Mich.

**COL. HOWARD C. DAVIDSON**, U. S. Army Air Corps, has been transferred from Washington, D. C., to Hickam Field, Honolulu, Hawaii.

**R. J. MOFFETT** is now affiliated with Federal Aircraft Ltd., Montreal, Que. He was manager, aircraft department, Canadian Vickers Ltd., of the same city.

**L. P. CROSET** writes from England that he has resigned as engineer-designer with Crossley-Premier Engines Ltd., Sandiacre, near Nottingham, to join William Asquith Ltd., Halifax, England.

Since Sept. 1, **R. W. COCHRAN** has been branch manager for the White Motor Co. in St. Louis, Mo. He previously was factory representative with headquarters in Denver.

**LT.-COL. STEPHEN G. HENRY** has been named commandant of the Armored Force School, Fort Knox, Ky. He formerly held the rank of major in the Operations Division, War Department, General Staff, Washington, D. C.

**RALPH E. SCHOOLEY** early last month joined the Allison Division of General Motors Corp., Indianapolis, as design engineer. He had been chassis engineer with American-LaFrance-Foamite Corp., Elmira, N. Y.

**W. A. SEARS**, supervisor of safety education, Chicago Board of Education, and chairman of the SAE Chicago Section's Student Activity, has been active in the National Defense rehabilitation program in the Chicago area. Eight technical schools are participating in the plan. The training course, which includes automobile mechanics, driving, machine-shop practice, welding, and other classes of preparatory work, has been attended by more than 6000 men.

**COL. EDWIN E. ALDRIN**, aeronautical engineer, veteran flyer, and contributor to numerous phases of technical development in aviation, has been appointed special consultant to Donald H. Connolly, Administrator of Civil Aeronautics. In his new capacity, Col. Aldrin will advise with the Administrator and Assistant Secretary of Commerce Robert H. Hinckley on varied aspects of planning and establishing a national air policy relating to airports, airways, pilot training, and technical development.

**JOHN M. ORR**, formerly general manager of the Equitable Auto Co., Pittsburgh, has been appointed assistant to the president of the Philadelphia Co. and Subsidiary Companies. His office will be in Pittsburgh. Mr. Orr, who was SAE vice president representing Transportation & Maintenance Engineering in 1937, has been affiliated with subsidiaries of the Philadelphia Co. since graduating from Carnegie Institute of Technology in 1915. He started with the Duquesne Light Co. as clerk, ad-



**John M. Orr**  
Advanced

vancing to the post of assistant to the vice president and general manager. In 1928 he was made general manager of the Equitable Auto Co.

**STUART G. PAGE**, who has been appointed general superintendent of the

**Stuart G. Page**  
Succeeds Orr



Equitable Auto Co., replacing Mr. Orr, entered the service of the Duquesne Light Co. as apprentice engineer after graduating from Iowa State College in 1924. He later became superintendent of plans and schedules, substations department, and in 1933 was appointed technical assistant to the vice president in charge of operations.

**WILLIAM L. BATT**, president, SKF Industries, has been appointed deputy commissioner of the Industrial Materials Division of the National Defense Advisory Commission, according to a recent announcement by Commissioner **EDWARD R. STETTINIUS, JR.** Mr. Batt has been with the Commission since its organization as division executive in charge of mining and mineral products for the Industrial Materials Division.

## Elected Vice President



**A. H. Williams**

**A. H. WILLIAMS**, formerly chief engineer of the Shafer Bearing Corp., Chicago, has been elected a vice president of the company.

**W. L. HULL**, who was instructor of mechanical engineering at Purdue University, has joined the mechanical engineering department of the University of Colorado, Boulder, Colo.

**LEON L. DOUGLAS**, formerly structural engineer, Barkley-Grow Aircraft Corp., Detroit, is now connected with the Brewster Aeronautical Corp., Long Island City, N. Y.

**ABBOT A. LANE** has resigned his position as mechanical engineer, Gulf Research & Development Co., Pittsburgh, to join the Stone & Webster Engineering Co., Boston, Mass.

## Students Enter Industry

Three former members of the SAE Student Branch at Massachusetts Institute of Technology advised the Society of positions last month. **KNIGHT S. CARSON** is estimator with the Douglas Aircraft Co., Santa Monica, Calif.; **NICHOLAS PICKARD** is maintenance engineer with Transcontinental & Western Air, Inc., Kansas City, Mo.; and **RICHARD H. WHEELER, JR.**, is with the Bendix Products Division of Bendix Aviation Corp., South Bend, Ind.

Purdue Graduate **BILLY S. HEGG**, who was secretary of the SAE Student Branch last year, is test engineer, new devices, Bendix Products Division, Bendix Aviation Corp., and **RAY T. CHEVEDDEN**, also Purdue Class of '40, is senior detail draftsman with Lockheed Aircraft Corp., Burbank, Calif.

**GEORGE SEMPLE**, from Princeton University, is student engineer with the Chrysler Corp., Highland Park, Mich., and **ROBERT E. WRIGHT**, University of Wisconsin, is in the general engineering department of Monsanto Chemical Co., St. Louis, Mo.

# SAE NOMINEES FOR 1941...

## for:

**President.....A. T. Colwell**

Vice President, Thompson Products,  
Inc.

**Treasurer .....David Beecroft**

Bendix Products Division, Bendix  
Aviation Corp.

### Membership on SAE Council, term of 1941-1942:

**N. C. Millman**

Product Service Manager,  
General Motors of Canada,  
Ltd.

**H. O. Mathews**

Automotive Engineer, Public  
Utility Engineering & Service  
Corp.

**D. A. Fales**

Associate Professor of Auto-  
motive Engineering, Massachu-  
setts Institute of Technology.

Continuing on the Council for 1941 will be the following men who were elected for a two-year term at the beginning of 1940: MURRAY FAHNESTOCK, Editor, "Ford Field Magazine;" JAMES B. FISHER, Vice President, Waukesha Motor Co.; AUSTIN M. WOLF, Automotive Consultant. Serving on the 1941 Council as Past Presidents will be ARTHUR NUTT, Vice President of Engineering, Wright Aeronautical Corp., and W. J. DAVIDSON, General Motors Corp.

### Vice Presidents:

**Aircraft .....Mac Short,**

Vice President, Engineering, Vega Air-  
plane Co.

**Aircraft-Engine ... Dr. George W. Lewis,**

Director, Aeronautical Research, Na-  
tional Advisory Committee for Aero-  
nautics.

**Diesel-Engine .....L. C. Lichty,**

Associate Professor, Mechanical Engi-  
neering, Yale University

**Fuels & Lubricants ....J. B. Macauley, Jr.,**

Research Engineer, Chrysler Corp.

**Passenger-Car .....Karl M. Wise,**

Director of Engineering, Bendix Products  
Division, Bendix Aviation Corp.

**Passenger-Car-Body .....J. R. Hughes,**

Chief Body Engineer, Studebaker Corp.

**Production .....E. S. Chapman,**

Vice President and Assistant General  
Manager, Plymouth Division, Chrysler  
Corp.

**Tractor & Industrial ..Chauncey W. Smith,**

Professor of Agricultural Engineering,  
University of Nebraska

**Transportation & Maintenance**

**T. L. Preble,**

Supervisor, Automotive Transportation,  
Tide Water Associated Oil Co.

**Truck, Bus & Railcar .....R. S. Reed,**

Chief Engineer, Brockway Motor Co., Inc.



**RAY B. HOOVER**, anti-friction-bearing specialist, who for the past 12 years has been active in the Shafer Bearing Corp., Chicago, has joined the Link-Belt Co. as development engineer. He makes his headquarters at the company's Dodge plant, Indianapolis, where most Link-Belt anti-friction bearings are manufactured.

**E. ZUMSTEG**, service manager, N. V. General Motors Java, Tandjong-Priok, Java, N.E.I., plans to arrive in San Francisco on



**E. Zumsteg**  
On Home-Leave

his home-leave early this month. Mail can be addressed to him in care of General Motors Overseas Operations, 1775 Broadway, New York.

**DR. R. H. HOBROCK** has been elected vice president in charge of production and research of the Bundy Tubing Co., Detroit. He previously was director of research.

**FREDERICK CHARLES KRUMMEL** is designer-draftsman with The Lamson Co., Syracuse, N. Y.

**THEODORE F. WALKER**, formerly draftsman with the Pontiac Motor Division, General Motors Corp., Pontiac, Mich., has joined the Hinckley-Myers Division, Kent-Moore Organization, Jackson, Mich., as development engineer.

**T. A. WEIR**, fuel engineer, Socony Vacuum Oil Co., Inc., whose headquarters were in Casablanca, Morocco, is now in the New York office of his company.

**HERMAN L. WECKLER**, vice president and general manager of the Chrysler Corp., has been elected to succeed the late Walter P. Chrysler on the corporation's board of directors.

On Aug. 19, National Aviation Day, the City of Dayton, Ohio, dedicated a memorial to **WILBUR** and **ORVILLE WRIGHT**. A tablet and shaft were unveiled on what is to be known as "Wright Brothers' Hill," where the "fathers of flight" found inspiration for their airplane. Many of the pilots who were trained by the Wright Brothers as early as 1910, took part in the ceremony.

**ANTONIO ARIAS, JR.**, formerly assistant engineer, Compania Azucarera Oriental Cubana, Guantanamo, Cuba, has joined the engineering department of International Plainfield Motor Co., Plainfield, N. J.

**J. L. DILWORTH** has been named to the faculty of the Pennsylvania State College, State College, Pa., as instructor in mechanical engineering. He previously was an instructor in the mechanical engineering department of Virginia Polytechnic Institute, Blacksburg, Va.

**HERBERT CLARK**, formerly general manager of the Castle Bromwich Aeroplane Factory, Birmingham, England, is now associated with Morris Commercial Cars, Ltd., of the same city.

**C. L. McCUEN**, vice president of General Motors Corp., has been appointed a member of the corporation's administration committee.

**CHARLES F. KETTERING**, vice president, General Motors Corp., has been named chairman of the National Inventors Council whose job will be to encourage inventions by civilians and to appraise their usefulness from the standpoint of national defense. The judgment of the Inventors Council will be advisory to the National Defense Research Committee and to its parent organization, the National Defense Advisory Commission.

The United States Patent Office, under jurisdiction of the Department of Commerce, is now required by law to examine patent applications in order that it may withhold from publication inventions whose disclosure "might be detrimental to the public safety or defense." Under this law a determination of the military value of the disclosures is required. The task of the Inventors Council will be to perform a similar duty with respect to new ideas submitted in the form of simple memorandum or blueprint, instead of the form required in patent applications.

**GEORGE GEORGE**, technical adviser and editor with Angus & Robertson, Ltd., Sydney, Australia, is author of the recently published book, "Service Station & Motor Mechanic's Manual."

**G. D. GROCE**, who has been service manager for the Cleveland Tractor Co., Cleveland, since 1925, has been promoted to merchandising manager in charge of service



**G. D. Groce**



**T. G. Moore**

and parts. Succeeding Mr. Groce as service manager is **T. G. MOORE**, who has been assistant service manager since 1933.

**CAPT. S. V. KRAUTHOFF**, Field Artillery, U. S. Army, has been transferred from the 17th Field Artillery, Fort Bragg, N. C., to the Armored Force Board, Fort Knox, Ky.

**JAMES D. MOONEY**, General Motors vice president, has been appointed chairman of the automotive division of the New York City campaign of the United States Committee for the Care of European Children.

**THOMAS H. RISK**, for the past five years with the Pure Oil Co., has joined Ethyl Gasoline Corp. in the refinery technology division, according to an announcement by **WILLIAM H. HUBNER**, in charge of that division. Mr. Risk will extend the technical service offered to Ethyl's refinery licensees through contact with refiners, and will assist in coordinating automotive research activities at Ethyl's Detroit and San Bernardino engineering laboratories with trends in refinery procedures. Prior to joining Pure Oil as automotive engineer in 1935, Mr. Risk was with Socony-Vacuum in the Paulsboro laboratories.

The Pennsylvania Grade Crude Oil Association has announced that **FREDERIC R. SPEED** will succeed the late Harry M. Rugg as automotive engineer for the Association. Mr. Speed, who will establish headquarters in Detroit, is a graduate of Lehigh University, and has been engaged in some branch of the automotive industry for more than 20 years.

**ALFRED P. SLOAN, JR.**, chairman of General Motors Corp., was principal speaker at a dinner held in Pittsburgh, Sept. 24, to observe the 10th anniversary of the Maurice and Laura Falk Foundation. His subject was "The Economic State of the Nation."

**D. E. GAMBLE**, Borg & Beck's vice president and general manager, who is a past chairman of the SAE Chicago Section, has given aviation another boost. A few weeks ago he purchased a new Fairchild high-wing airplane for his personal use.

**HOY STEVENS** has joined the Cleveland, Columbus & Cincinnati Highway, Inc., Cleveland, as superintendent of maintenance. He previously was affiliated with the Inspection Machinery Co., of the same city.

**GEORGE L. STETSON**, who has been doing field research in fuels and lubricants for the Shell Oil Co., Inc., with headquarters in St. Louis, has been transferred to New York as research engineer, aviation department.

**LEON A. CHAMINADE**, chairman of the SAE Detroit Section, has been named engineer in charge of design by Chevrolet. His former post was that of chassis units engineer.

**THOMAS G. MUIR** has taken a position as instructor of drafting at the Stinson School of Aviation, Long Island City, New York. He formerly was engineer with Mack Mfg. Corp., Allentown, Pa.

**JOHN A. C. WARNER**, SAE general manager, has been appointed a member of the Evaluation Committee of the National Roster of Scientific and Specialized Personnel. This project of the National Resources Planning Board has been organized to undertake the listing of specially trained individuals of the country in a master list keyed and coded for analytical selection as special demands arise.

(Continued on page 21)

## About SAE Members

(Continued from page 20)

**NORMAN H. DANIEL**, General Motors of Canada Ltd., has transferred from the organization's service department back to its engineering department. His present title is service engineer. Mr. Daniel is 1940-1941 chairman of the SAE Canadian Section.

**WILBUR SHAW** recently was appointed manager of the aeronautics division of Firestone Tire & Rubber Co., Akron, Ohio. Mr.

### Appointed by Firestone



Wilbur Shaw

Shaw, famous for winning the 500-mile Indianapolis automobile race in 1937, 1939, and 1940, took up flying 15 years ago and was formerly a member of the 113th Pursuit Group of the Air Corps Reserve. From 1932 to 1937 he was co-owner and operator of the Los Angeles Aircraft Co., engaged in training pilots and operating airplane passenger service.

**ALFRED KRIEG** has been named assistant chief engineer of motor trucks, International Harvester Co., Chicago. He previously was located at the company's Fort Wayne works, Fort Wayne, Ind.

**JACKSON T. WILLS** is senior experimental test engineer with the Allison Division of General Motors Corp., Indianapolis. He formerly was technical correspondent with the Wright Aeronautical Corp., Paterson, N. J.

**ELLIS W. TEMPLIN**, automotive engineer, Los Angeles Department of Water & Power, is one of several Southern California transportation experts who have been asked to deliver special lectures in a new course on automotive transportation management being sponsored by the University of California Extension Division. The course started in Los Angeles, Sept. 17.

Among SAE members participating in the program of the 29th National Safety Congress, Chicago, Oct. 7-11, are: **JEROME LEDERER**, Civil Aeronautics Board; **T. L. PREBLE**, supervisor of automotive transportation, Tide Water Associated Oil Co.; **H. H. KELLY**, chief, section of safety, Bureau of Motor Carriers, Interstate Commerce Commission; **SIDNEY J. WILLIAMS**, director, public safety division, National Safety Council.

**DR. RICHARD STERN**, manufacturing department, Shell Oil Co., Inc., has been transferred from St. Louis, Mo., to New York.

## Knudsen Gives Up GM Posts

Following the Sept. 3 board of directors meeting of General Motors Corp., Alfred P. Sloan, Jr., chairman, announced that William S. Knudsen, because of his governmental duties as a member of the National Defense Advisory Commission, had tendered his resignation as president of the corporation and as a member of the corporation's board of directors, policy committee and administration committee.

In June, Mr. Knudsen was granted a leave of absence from the corporation to devote full time to his national defense duties as production coordinator.

Mr. Sloan's announcement also stated: "The board felt that in view of the approaching time when the corporation may be in a position to enter into contracts with the government to supply products required under the defense program, it must of necessity accept Mr. Knudsen's resignation in order to remove any possibility of conflict of interests owing to Mr. Knudsen's dual position. This was done with the greatest of regret."

"First of all, we are all alive and in good health." That good news came in a letter from J. J. Broeze, Proefstation Delft, the Delft, Holland, laboratories of the Royal Dutch Shell Co., to **A. G. CATTANEO**, Shell Development Co., Emeryville, Calif. The letter was dated June 4 and received by Mr. Cattaneo on Aug. 3. It had been opened and passed by German censor. Mr. Broeze, J. O. Hinze, and H. Blok, of the Delft laboratories, prepared papers which were read at the SAE World Automotive Engineering Congress in July of last year.

**FRANK B. WOZNIAK** has joined the Stout Skycraft Corp., Detroit, as stress analyst. He previously held the same position with Stinson Aircraft Division, Aviation Mfg. Corp., Nashville, Tenn.

**JOHN F. HAINES**, who was design engineer with Engineering Projects, Inc., before it became the Aeroproducts Division of General Motors Corp., has been named project engineer by Aeroproducts.

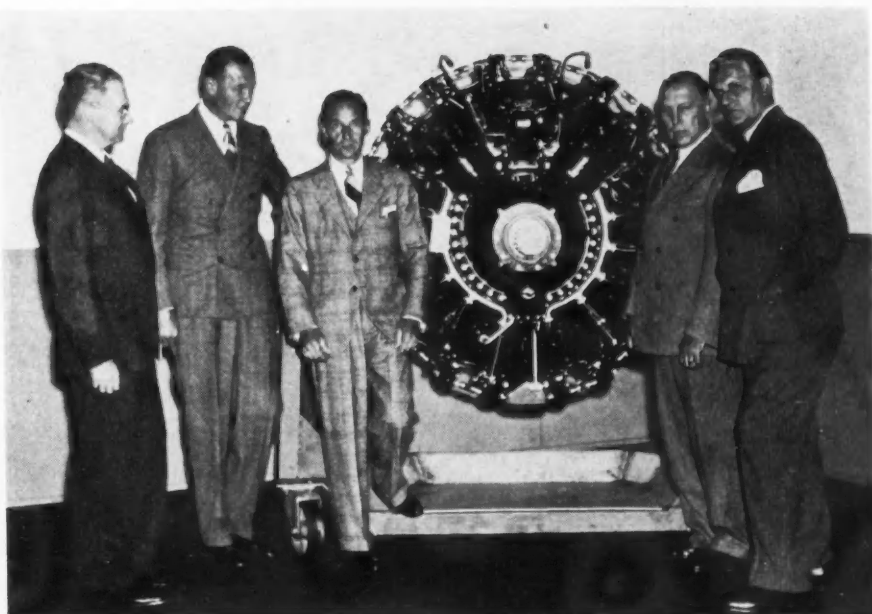
**ALLAN C. TULLY**, Ethyl Gasoline Corp., has been named assistant manager of the company's Dayton Division.

**CARL H. MUELLER**, formerly sales engineer, Lincoln Engineering Co., now holds the post of assistant sales manager in charge of industrial sales. He is located in St. Louis.

**LEO M. SMITH**, formerly instructor in auto mechanics, National Youth Administration, is now affiliated with the Mack Mfg. Corp., Allentown, Pa.

(Concluded on page 28)

## Ford to Manufacture Aircraft Engines

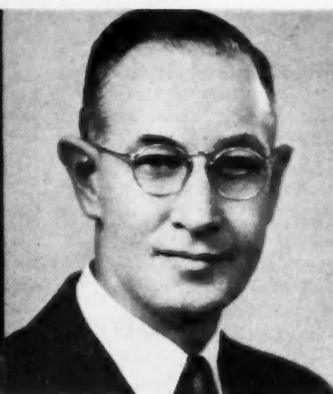


The above picture was taken at Pratt & Whitney Aircraft, Division of United Aircraft Corp., about two weeks before the Ford Motor Co. broke ground for an \$11,000,000 plant to build 4000 Double Wasp engines for the United States Government, under a license agreement with Pratt & Whitney

Left to right are: Dr. George Jackson Mead, director, Plane & Engine Division, National Defense Advisory Commission; Frederick B. Rentschler, chairman, United Aircraft Corp.; Edsel Ford, president, Ford Motor Co.; Eugene E. Wilson, president, United Aircraft Corp.; and Charles Sorensen, Ford general manager. Dr. Mead, Mr. Ford, and Mr. Wilson are SAE members



R. K. Whittlesey  
Northwest



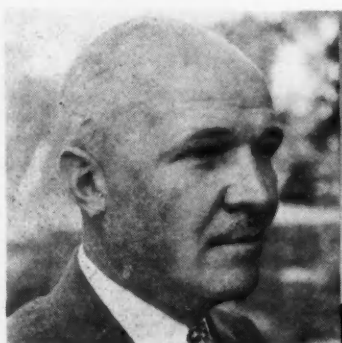
Leon A. Chaminade  
Detroit



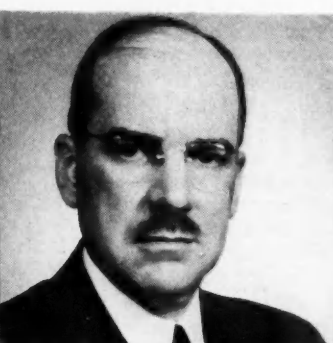
R. R. Matthews  
Kansas City



W. G. Piwonka  
Cleveland



A. L. Heintze  
St. Louis



George E. Reynolds  
Washington

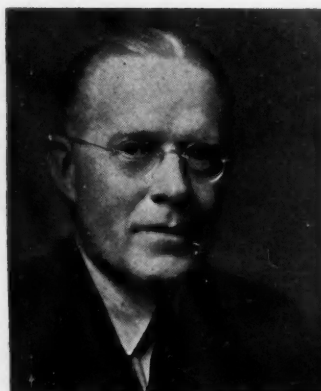


C. S. Hansen  
Tulsa Group



E. R. Rutenber  
Milwaukee

# Section for



H. Follett Hodgkins  
Syracuse



John G. Lee  
Southern New England



Dr. Ulric B. Bray  
Southern California



E. A. Sipp  
Chicago





Norman H. Daniel  
Canadian



R. J. Grow  
Buffalo



R. F. Gagg  
Metropolitan



Joseph E. Noon  
New England

# Chairmen

1940-1941



William Schwarze, Jr.  
Philadelphia



Earl C. Booth  
Indiana



R. A. Watson  
Northern California



G. M. Magrum  
Buffalo



Kenneth H. Mutch  
Oregon



E. R. Fitch  
Pittsburgh

# APPLICATIONS Received

The applications for membership received between Aug. 15, 1940, and Sept. 15, 1940, are listed below. The members of the Society are urged to send any pertinent information with regard to those listed which the Council should have for consideration prior to their election. It is requested that such communications from members be sent promptly.

## Canadian Section

HOSIE, ALEXANDER W., fleet superintendent, Christie Brown & Co., Ltd., Toronto, Ontario.

JONES, FREDERICK LYNDON, owner, Jones Bros. Garage, Port Stanley, Ontario.

MANTLE, THOMAS O., service representative, Chrysler Corp. of Canada Ltd., Windsor, Ontario.

## Chicago Section

LEAHY, JAMES A., department head, Joseph T. Ryerson & Son, Inc., Chicago.

## Cleveland Section

ARNOLD, RICHARD, director of engineering, The Lubri-Zol Corp., Wickliffe, Ohio.

CHURCH, HEYLIGER, manager, airplane division, The Weatherhead Co., Cleveland.

MOORE, GUY RICHARD, sales department, Thompson Products, Inc., Cleveland.

## Dayton Section

BROWN, HAROLD FREDERICK, division engineer, The Ohio Oil Co., Columbus, Ohio.

## Detroit Section

KARPINSKI, KASIMIR, experimental engineer, Chrysler Corp., Detroit.

MARCHANT, JOSEPH RICHARDSON, checker, Chrysler Corp., Highland Park, Mich.

ZIEGLER, EARL R., experimental engineer, Chrysler Corp., Highland Park, Mich.

## Metropolitan Section

CONLEY, GROVER N., Jr., engine tester, Wright Aeronautical Corp., Paterson, N. J.

DAVENPORT, EDMUND S., metallurgist, Research Laboratory, United States Steel Corp., Kearny, N. J.

DAVIS, DAVID L., experimental engine tester, Wright Aeronautical Corp., Paterson, N. J.

ENYART, WILLIAM R., general manager and vice president, Simmonds Aeroaccessories, Inc., New York.

FRAYER, THEODORE, engine tester, Wright Aeronautical Corp., Paterson, N. J.

HART, ELMER LAWRENCE, junior engineer, Wright Aeronautical Corp., Paterson, N. J.

HAUSER, ALEXANDER, vice president, Wrought Bearing Metals, Inc., New York.

HEY, LESTER E., experimental engine tester, Wright Aeronautical Corp., Paterson, N. J.

INFORTUNIO, JOHN, Brooklyn Bus Corp., Brooklyn, N. Y.

KELLEY, GEORGE S., Jr., experimental tester, Wright Aeronautical Corp., Paterson, N. J.

MULDER, HOWARD M., engine tester, Wright Aeronautical Corp., Paterson, N. J.

OBLINGER, RICHARD L., engine tester, Wright Aeronautical Corp., Paterson, N. J.

RICHARDSON, SEWALL F., test observer, Wright Aeronautical Corp., Paterson, N. J.

ROGERS, JOHN DEWITT, Jr., experimental

engine tester, Wright Aeronautical Corp., Paterson, N. J.

STURTEVANT, ERIC ALBERT, general manager, Sturtevant Co., New York.

SUCHMAN, SIDNEY SHEPARD, electrical service man, Par Operating Co., New York.

WALSH, FRANK VAN WORMER, Jr., student engineer, Wright Aeronautical Corp., Paterson, N. J.

WATSON, RUDOLPH BURNLEY, Jr., special representative, Chrysler Corp., New York.

WEST, ALEXANDER PHILLIPS, stress engineer, The Australia Aircraft Production Commission, Melbourne, Australia. Mail: British Purchasing Commission, 15 Broad St., New York.

## Milwaukee Section

JORDAN, ALBERT WESLEY, experimental engineer, Waukesha Motor Co., Waukesha, Wis.

KEATON, DON R., chief engineer, Whirlwind Lawn Mower Corp., Milwaukee.

SCHULZE, FREDERICK C., assistant sales manager, Waukesha Motor Co., Waukesha, Wis.

STOCKER, NORMAN A., sales representative, Cleveland Graphite Bronze Co., Milwaukee.

## Northern California Section

ROLAND, VERN, automotive engineer, Shell Oil Co., Inc., San Francisco.

## Oregon Section

BEVERLY, H. L., sales engineer, Standard Oil Co. of Calif., Portland, Oregon.

WETTERBORG, A. E., manager, Federal-Mogul Corp., Portland, Oregon.

## Philadelphia Section

HEINE, L. JOSEPH, electrical engineer, Mack Mfg. Corp., Allentown, Pa.

HUGHES, MAURICE L., automotive engineer, Sun Oil Co., Philadelphia.

NAIL, FRANKLIN R., engineer, special equipment, Mack Mfg. Corp., Allentown, Pa.

## Pittsburgh Section

PAGE, S. G., general superintendent, Equitable Auto Co., Pittsburgh.

## St. Louis Section

POST, NICHOLAS, draftsman, Key Company of East St. Louis, East St. Louis, Ill.

RABB, WILLIAM C., service representative, Ford Motor Co., St. Louis, Mo.

## Southern California Section

ARDEN, JOHN D'ARCY, field engineer, American Liquid Gas Corp., Los Angeles.

DANNBACK, TOIVO MANUEL, tool checker, Douglas Aircraft Co., Inc., Santa Monica, Calif.

JUNGE, WALTER A., owner, W. A. Junge Transportation Co., Sumner, Wash. Mail: 733 South Van Buren St., Stockton, Calif.

LIEBERMAN, ARTHUR A., owner, Petroleum Marketing Co., Los Angeles.

NELSON, HENRY O'DELL, airplane designer, Vultee Aircraft, Inc., Downey, Calif.

RYDEN, GUNNAR, 4166 Ince Blvd., Culver City, Calif.

## Washington Section

HENDERSON, WILLIAM DONALD, instructor, auto mechanics and driver training, American Automobile Association, Washington, D. C.

## Outside of Section Territory

AKERS, DWIGHT CUMMING, Jr., lubrication engineer, Railway Division, The Texas Co., New York. Mail: Box 554, Jacksonville, Florida.

SWANSON, CARL EVERETT, electrical engineer, Northwest Airlines, Inc., St. Paul, Minn.

YOUNG, VERNON D., Federal Mining & Smelting Co., Baxter Springs, Kansas.

## Foreign

GOODE, BRUCE ALFRED, director and technical representative, Glover & Goode Base Metals, Pty., Ltd., Melbourne, Victoria, Australia.

SEXSTONE, ARTHUR JAMES, Captain, Royal Army Ordnance Corps, London, England.

# NEW MEMBERS Qualified

These applicants who have qualified for admission to the Society have been welcomed into membership between Aug. 15, 1940, and Sept. 15, 1940.

The various grades of membership are indicated by: (M) Member; (A) Associate Member; (J) Junior; (Aff.) Affiliate Member; (SM) Service Member; (FM) Foreign Member.

## Canadian Section

RUSSELL, THOMAS BROWN (A) assistant to general manager, Canadian Acme Screw & Gear Ltd., 202 Weston Rd., S., Toronto, Ontario.

## Chicago Section

WILLOCK, THOMAS P. (A) salesman, Studebaker Sales Co. of Chicago, 4653 Washington Blvd., Chicago (mail) 38 Harrison St., Oak Park, Ill.

ZIEGLER, EARL EDWARD (J) research engineer, Standard Oil Co. (Ind.), Whiting, Ind. (mail) 1614 Warwick Ave.

#### Cleveland Section

BEIER, KURT A. (M) special design engineer, White Motor Co., Cleveland (mail) 6540 York Rd., Parma Heights.

FAHLMAN, EVERETT G. (M) president, general manager, Permold Co., 6700 Grand Ave., Cleveland (mail) Box 1791.

PORTER, GEORGE H., III (A) manager, metallurgist, George H. Porter Steel Treating Co., 1265-71 E. 55th St., Cleveland.

#### Dayton Section

BOSLER, THEODORE C. (M) engineer, Allison Division, General Motors Corp., Indianapolis (mail) 311 Lonsdale Ave., Dayton.

PARMAKIAN, LEVON (S M) mechanical engineer, U. S. Army, Air Corps, Wright Field, Dayton.

#### Detroit Section

HOEHN, VINCENT H. (M) junior engineer, Packard Motor Car Co., Detroit (mail) 5829 Ellery Ave.

LICHY, CHARLES M. (M) metallurgical engineer, Jones & Laughlin Steel Corp., Pittsburgh, Pa. (mail) 2111 Fisher Bldg., Detroit.

LONG, CARLYLE RICHARD (A) vice president, sales manager, Motor Valve & Mfg. Co., Marine City, Mich. (mail) 252 Fisher Rd., Grosse Pointe Farms, Mich.

MACPHERSON, CARL D. (A) sales promotion, Gar Wood Industries, Inc., Detroit (mail) 1350 Berkshire Rd., Grosse Pointe Park, Mich.

WAYNE, EDWARD H. (J) die designer, Ford Motor Co., Dearborn, Mich. (mail) 112 Temple St., Detroit.

#### Indiana Section

NEWMAN, PERCY ALEXANDER (M) tool engineer, Ross Gear & Tool Co., Lafayette, Ind. (mail) 2314 Main St.

#### Metropolitan Section

BAYLESS, E. R. (A) service engineer, Wright Aeronautical Corp., Paterson, N. J. (mail) Suncrest Terrace, North Haledon, N. J.

CURREN, ARTHUR THOMAS (J) test engineer, Wright Aeronautical Corp., Paterson, N. J.

EVANS, PAUL IRVING (J) tester, experimental test laboratory, Wright Aeronautical Corp., Paterson, N. J. (mail) R.F.D. 1, Erskine Lakes, Wanaque, N. J.

GRUMMAN, EUGENE VICTOR (A) chief shop instructor, Delchanty Institute, 11 E. 16th St., New York City.

JEWETT, CHARLES S. (J) test engineer, Wright Aeronautical Corp., Paterson, N. J. (mail) Cedar Rd., Pines Lake, R.F.D. No. 1.

KORFMANN, FREDERICK W. (A) development engineer, Morganite Brush Co., Inc., 33-02 48th Ave., Long Island City, N. Y.

LORD, ROGER (M) vice president, Trucktor Corp., 156 Wilson Ave., Newark, N. J. (mail) 238 Rutledge Ave., East Orange, N. J.

McELGIN, JOHN V. (J) experimental engine tester, Wright Aeronautical Corp., Paterson, N. J. (mail) 220 B 17th Ave.

McLOUGHLIN, FREDERICK P. (A) machinist, Intertype Corp., 360 Furman St., Brooklyn, N. Y. (mail) 155 Grant Ave.

MILLER, CONRAD (J) sales engineer, Bel-

flex Corp., 2012 Sylvania Ave., Toledo, O. (mail) 311 Palisade Ave., Yonkers, N. Y.

OGG, ROBERT S. (A) instructor, Stewart Technical School, 253 W. 64th St., New York City (mail) 17 W. 63rd St.

SMITH, HARRY A. (A) chief diesel theory instructor, Delchanty Institute, 11 E. 16th St., New York City (mail) 136 E. 17th St., Apt. 26.

VAN BLERCK, JOSEPH, JR. (J) secretary, Boat Engines, Inc., 5-01 47th Rd., Long Island City, N. Y. (mail) 28 Carstairs Rd., Valley Stream, L. I., N. Y.

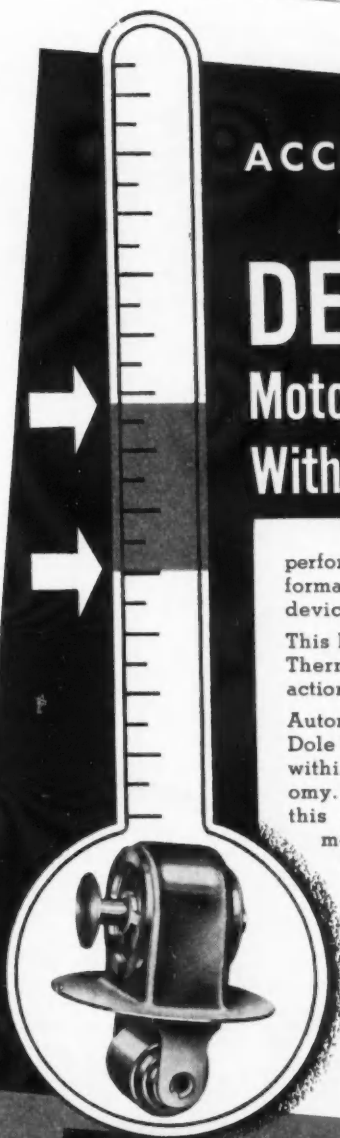
VANNAH, SHERMAN (J) test engineer, Wright Aeronautical Corp., Paterson, N. J.

ZWICKER, VERNON M. (J) experimental engine tester, Wright Aeronautical Corp., Paterson, N. J. (mail) 170 Sixth Ave., Clifton, N. J.

#### Philadelphia Section

ALEXANDER, NELSON E. (M) test engineer, Atlantic Refining Co., 260 S. Broad St., Philadelphia (mail) 1211 Longacre Blvd., S., Yeadon, Pa.

BARR, VICTOR L. (J) assistant chief engineer, Roller Bearing Co. of America, Trenton, N. J. (mail) 2533 N. Front St., Philadelphia.



ACCURATE, AUTOMATIC  
*But Above All*  
**DEPENDABLE**  
Motor Temperature Control  
Within Pre-determined Limits

● Engineers know how reliable, all 'round performance helps sell more cars...and such performance depends to an important extent on the device used for motor temperature control.

This has led a great number to the choice of Dole Thermostats which use the non-fatiguing, sure action Dole Bi-Metal as a driving force.

Automatic as the tides, accurate as fine watches, Dole Thermostats hold motor temperatures strictly within the range for peak performance and economy. Above all, they are *dependable*... deliver this automatic, accurate response month after month... give uniform control under a wide variety of road, load and weather conditions.

Write our engineering staff for technical data on your particular thermostat requirements. Also—Check into Dole Bi-Metal as raw material in sheets, strips or coils and Dole Brass Fittings for copper tubing connections.

THE DOLE VALVE COMPANY  
1901-1941 Carroll Ave. Chicago, Ill.  
Detroit Office: General Motors Bldg.

**DOLE**  
*Thermostats*  
and THERMOSTATIC BI-METAL



PALMER, RICHARD S. (M) laboratory assistant, Sun Oil Co., Marcus Hook, Pa. (mail) 906 E. 16th St., Chester, Pa.

#### Pittsburgh Section

EDWARDS, LEO M. (J) foreman, automotive laboratory, Quaker State Oil Refining Corp., Emlenton, Pa. (mail) Box 201.

#### Southern California Section

BEGLEY, DON (A) branch manager, Hertz Drivervelf Stations, Inc., 718 E. Third, Los Angeles (mail) 703 N. Angeleno Ave., Burbank, Calif.

ELLINWOOD, H. RAY (M) president, Adel Precision Products Corp., 231 S. Olive Ave., Burbank, Calif.

FURRY, FRANK W. (J) junior planning engineer, Lockheed Aircraft Corp., Burbank, Calif. (mail) 947 Nordica Dr., Los Angeles.

HORNING, JACK P. (A) manager, aeronautical division, Firestone Tire & Rubber Co., 2525 Firestone Blvd., Los Angeles.

LOTH, JOHN SMITH (J) draftsman, Rocky Mountain Steel Products Co., 1356 Wall St., Los Angeles (mail) 3141 Live Oak St., Huntington Park, Calif.

TEMPLETON, ROBERT READE (J) flight engineer, Wright Aeronautical Corp., Paterson,

N. J. (mail) c/o Wm. Reif, 1151 Sanborn Ave., Los Angeles.

#### Southern New England Section

MCGREGOR, DOUGLAS (M) chief engineer, Indian Motorcycle Co., Springfield, Mass.

#### Washington Section

LANE, JOHN J. (A) wholesale manager, Stuart Motor Co., 1905 W. Virginia Ave., N. E., Washington.

LATROBE, WILLIAM CLAIBORNE, Lt.-Com. (S M) U. S. Navy, Navy Department, Bureau of Engineering, Washington.

#### Outside of Section Territory

MABES, THEODORE (A) shop foreman, United Transports, Inc., Eighth & Willard, Joplin, Mo. (mail) 2606 Joplin St.

ZIFFLE, ROBERT W. (M) inspector of equipment, New Orleans Public Service, Inc., 317 Baronne St., New Orleans, La. (mail) 2838 Iberville St.

#### Foreign

DYKES, CHRISTOPHER (J) assistant to research engineer, British Overseas Airways Corp., London, England (mail) "The Loke House," West Rd., Cambridge, England.

PORTER, ROBERT JOHN FINLAY (A) service engineer, Ford Motor Co. of New Zealand Ltd., Box 12, Lower Hutt, Wellington, New Zealand (mail) 195 Aro St., Wellington C2, New Zealand.

SUTCLIFFE, JOHN WHATELY (J) technical assistant to superintendent, home engineering, British Imperial Airways Ltd., Grand Spa, Bristol, England (mail) 16 Abbey Rd., Grimsby, Lincolnshire, England.

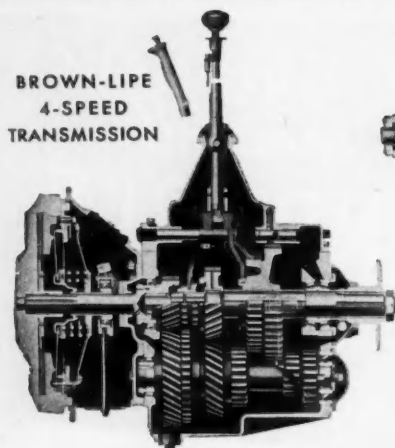
#### Obituary

##### E. P. Culver

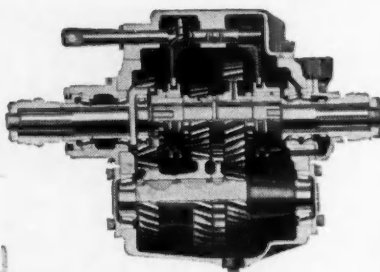
E. P. Culver, associate professor of mechanical engineering, Princeton University, died Aug. 21, following a heart attack at his summer home at Pilot Knob, N. Y. Mr. Culver had been a member of the engineering faculty at Princeton University for 20 years, holding the rank of associate professor since 1930. He was 47 years of age and had been a member of the Society since 1919.

Mr. Culver began his technical studies at Stevens Institute of Technology, transferring at the start of his sophomore year to Union University. In 1915 he received his B.E. degree from Union, graduating at the head of his division in the engineering school. While at college he contributed a number of articles to trade and technical publications.

In his first job Mr. Culver sold speed boats as sales manager for the Albany Boat Corp. Later he joined the American Locomotive Co. as designing engineer. He continued with that company until his enlistment in the Army in 1918. After studying at the U. S. School of Military Aeronautics at Massachusetts Institute of Technology, he was commissioned a lieutenant and assigned as engineer officer with the Science and Research Division, Bureau of Military Aeronautics, Langley Field, Va., and later to the same post at Selfridge Field, Mich. He joined the Princeton faculty soon after the war.



BROWN-LIPE  
4-SPEED  
TRANSMISSION



BROWN-LIPE 3-SPEED AUXILIARY  
TRANSMISSION

**37 YEARS OF LEADERSHIP**

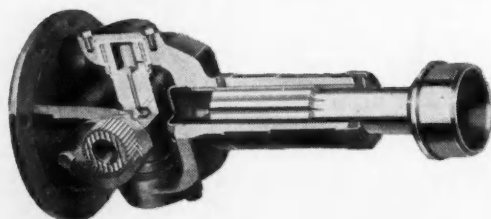
**Spicer Manufacturing Corporation**  
Toledo, Ohio

BROWN-LIPE  
CLUTCHES and  
TRANSMISSIONS

SALISBURY  
FRONT and REAR  
AXLES

SPICER  
UNIVERSAL  
JOINTS

PARISH  
FRAMES  
READING, PA.



SPICER NEEDLE-BEARING  
UNIVERSAL JOINT

● For 37 years, Spicer has been foremost in automotive experimenting and testing, in developing efficient equipment designs, in engineering for performance, in building to standards that result in excep-

tional service.● Spicer cooperation with the car and truck industry, resulting in improved power transmission and performance, have won the confidence of every automotive manufacturer. Specify Spicer!